a heat sink having a first surface, a second surface opposed to the first surface, and a plurality of side surfaces interconnecting the first surface and the second surface, wherein the first surface of the heat sink is attached to the chip for interposing the chip between the chip carrier and the heat sink;

an interface layer formed on the second surface of the heat sink, and made of a material having adhesion with a molding compound smaller than adhesion between the heat sink and the molding compound, wherein the interface layer covers the entire second surface of the heat sink; and

an encapsulant made of the molding compound for encapsulating the chip, the heat sink and the chip carrier, wherein the interface layer and the side surfaces of the heat sink are exposed to outside of the encapsulant, the side surfaces of the heat sink are flush with side edges of the encapsulant, and the molding compound left on the interface layer during formation of the encapsulant is easily removable from the interface layer, so as to make the semiconductor package free of flash of the molding compound because of the relatively smaller adhesion between the interface layer and the molding compound.

12. (Amended) A semiconductor package with a heat sink, comprising:

a chip carrier;

at least one chip mounted on the chip carrier and electrically connected to the chip carrier;

at least one buffer pad attached to the chip and made of a material having a similar thermal expansion coefficient to the chip;

a heat sink having a first surface, a second surface opposed to the first surface, and a plurality of side surfaces interconnecting the first surface and the second surface, wherein the first surface of the heat sink is attached to the buffer pad for interposing the buffer pad between the heat sink and the chip so as to space the first surface apart from the chip;

an interface layer formed on the second surface of the heat sink, and made of a material having adhesion with a molding compound smaller than adhesion between the heat sink and the molding compound, wherein the interface layer covers the entire second surface of the heat sink; and